Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

1. (Currently Amended) A sample processing device comprising:

a body comprising a transmissive layer that transmits selected light and a control layer that blocks the selected light, wherein the control layer is attached to the transmissive layer with a first major surface of the control layer facing the transmissive layer and a second major surface facing away from the transmissive layer;

a plurality of process chamber structures formed in the control layer, wherein each of the process chamber structures comprises an interior window surface and an interior side surface formed by the control layer;

a cover sheet attached to the second major surface of the control layer, wherein the cover sheet and the control layer are coextensive, wherein the cover sheet and the plurality of process chamber structures define a plurality of process chambers in the sample processing device, wherein the selected light can be transmitted into or out of each process chamber through the interior window surface; and

a conduit in the sample processing device, wherein each process chamber of the plurality of process chambers is in fluid communication with the conduit.

2. (Original) A device according to claim 1, wherein each of the process chamber structures comprises a void formed through the first major surface and the second major surface of the control layer, wherein the void exposes the interior window surface formed by the transmissive layer.

3. (Original) A device according to claim 1, wherein the interior window surface within each process chamber is formed by the transmissive layer.

4. (Original) A device according to claim 1, wherein the control layer is melt-bonded to the transmissive layer.

5. (Original) A device according to claim 1, wherein the transmissive layer and the control layer comprise the same polymeric material, and further wherein the control layer comprises a light blocking filler incorporated therein.

6. (Original) A device according to claim 1, wherein each process chamber of the plurality of process chambers comprises a height measured from the cover sheet to the interior window surface, and wherein the control layer comprises a thickness between the cover sheet and the transmissive layer that is less than or equal to the height of each process chamber of the plurality of process chambers.

7. (Original) A device according to claim 1, wherein the conduit is formed between the cover sheet and the control layer.

8. (Original) A device according to claim 1, wherein the conduit comprises a conduit structure formed in the second major surface of the control layer, wherein the cover sheet and the conduit structure define the conduit in the sample processing device.

9. (Original) A device according to claim 8, wherein the conduit structure comprises a depth measured from the second major surface of the control layer that is less than a thickness of the control layer as measured between the first major surface and the second major surface of the control layer.

10. (Original) A device according to claim 1, wherein the cover sheet blocks the selected

light.

11. (Original) A device according to claim 1, wherein the cover sheet comprises a reflective surface facing the control layer.

12. (Original) A device according to claim 1, wherein the cover sheet transmits the selected light.

13. (Original) A sample processing device comprising:

a body comprising a transmissive layer that transmits selected light and a control layer that blocks the selected light, wherein a first major surface of the control layer faces and is melt-bonded to the transmissive layer, and wherein a second major surface of the control layer faces away from the transmissive layer;

a plurality of process chamber structures formed in the body, wherein each of the process chamber structures comprises a void formed through the first major surface and the second major surface of the control layer, wherein the void exposes an interior window surface formed by the transmissive layer within each process chamber structure;

a cover sheet attached to the second major surface of the control layer, wherein the cover sheet and the plurality of process chamber structures define a plurality of process chambers in the sample processing device, and wherein the cover sheet blocks the selected light; and

a conduit formed between the cover sheet and the control layer in the sample processing device, wherein each process chamber of the plurality of process chambers is in fluid communication with the conduit.

14. (Currently Amended) A method of manufacturing a sample processing device, the method comprising:

providing a body that comprises:

a transmissive layer that transmits selected light;

a control layer that blocks the selected light, wherein the control layer is attached to the transmissive layer with a first major surface of the control layer facing the transmissive layer and a second major surface facing away from the transmissive layer;

a plurality of process chamber structures formed in the control layer, wherein each of the process chamber structures comprises an interior window surface and an interior side surface formed by the control layer; and

attaching a cover sheet to the second major surface of the control layer, wherein the cover sheet and the control layer are coextensive, wherein the cover sheet and the plurality of process chamber structures define a plurality of process chambers in the sample processing device, and wherein attaching the cover sheet forms a conduit in the sample processing device, wherein each process chamber of the plurality of process chambers is in fluid communication with the conduit.

15. (Original) A method according to claim 14, wherein providing the body comprises melt bonding the control layer to the transmissive layer.

16. (Original) A method according to claim 14, wherein providing the body comprises forming a void through the control layer to form each process chamber structure of the plurality of process chamber structures, wherein forming the void exposes the interior window surface of the process chamber.

17. (Original) A method according to claim 16, wherein, for each process chamber structure, forming the void comprises exposing the transmissive layer to form the interior window surface.

18. (Original) A method according to claim 14, wherein providing the body comprises forming the plurality of process chamber structures into the control layer.

19. (Original) A method according to claim 20, wherein forming the plurality of process chamber structures comprises:

providing the control layer on the transmissive layer, wherein the control layer comprises polymeric material at or above a melt processing temperature of the polymeric material;

forming the plurality of process chamber structures into the control layer while the control layer is held at or above the melt processing temperature; and

lowering the temperature of the control layer below the melt processing temperature after forming the plurality of process chamber structures.

20. (Original) A method according to claim 14, wherein the conduit is formed between the cover sheet and the control layer.

21. (Original) A method according to claim 14, wherein the conduit comprises a conduit structure formed in the second major surface of the control layer, wherein the cover sheet and the conduit structure define the conduit in the sample processing device.

22. (Original) A method according to claim 21, further comprising forming the conduit structure in the second major surface of the control layer.

23. (Original) A method according to claim 22, wherein forming the conduit structure comprises:

providing the control layer on the transmissive layer, wherein the control layer comprises polymeric material at or above a melt processing temperature of the polymeric material;

forming the conduit structure in the control layer while the control layer is held at or above the melt processing temperature; and

lowering the temperature of the control layer below the melt processing temperature after

forming the conduit structure.

24. (Original) A method according to claim 21, wherein the conduit structure comprises a depth measured from the second major surface of the control layer that is less than a thickness of the control layer as measured between the first major surface and the second major surface of the control layer.

25. (Original) A method according to claim 14, further comprising locating one or more reagents in one or more of the process chamber structures before attaching the cover sheet.

26. (Original) A method according to claim 14, wherein each process chamber of the plurality of process chambers comprises a height measured from the cover sheet to the interior window surface, and wherein the control layer comprises a thickness between the cover sheet and the transmissive layer that is less than or equal to the height of each process chamber of the plurality of process chambers.

27. (Original) A method according to claim 14, wherein the interior window surface within each process chamber is formed by the transmissive layer.

28. (Original) A method according to claim 14, wherein the cover sheet blocks the selected light.

29. (Original) A method according to claim 14, wherein the cover sheet comprises a reflective surface facing the control layer.

30. (Original) A method according to claim 14, wherein the cover sheet transmits the selected light.

31-39. (Canceled)

40. (New) A method of manufacturing a web of sample processing devices, the method comprising:

providing a transmissive layer that transmits selected light;

attaching a control layer to the transmissive layer with a first major surface of the control layer facing the transmissive layer and a second major surface facing away from the transmissive layer, wherein the control layer blocks the selected light, wherein a plurality of process chamber structures are formed in the control layer, wherein each of the process chamber structures comprises a void formed through the first major surface and the second major surface of the control layer, wherein the void exposes an interior window surface formed by the transmissive layer within each process chamber structure; and

attaching a cover sheet to the second major surface of the control layer, wherein the cover sheet and the plurality of process chamber structures define a plurality of process chambers in each of the sample processing devices, wherein attaching the cover sheet forms a conduit in each of the sample processing devices, wherein each process chamber of the plurality of process chambers is in fluid communication with the conduit.

41. (New) A method according to claim 40, wherein attaching the control layer to the transmissive layer comprises melt bonding.

42. (New) A method according to claim 40, wherein the method further comprises forming a void through the control layer to form each process chamber structure of the plurality of process chamber structures in each of the sample processing devices, wherein forming the void exposes the interior window surface of the process chamber.

43. (New) A method according to claim 42, wherein, for each process chamber structure, forming the void comprises exposing the transmissive layer to form the interior window surface.

44. (New) A method according to claim 40, wherein the method further comprises forming the plurality of process chamber structures into the control layer.

45. (New) A method according to claim 40, wherein the conduit is formed between the cover sheet and the control layer.

46. (New) A method according to claim 40, wherein the conduit comprises a conduit structure formed in the second major surface of the control layer, wherein the cover sheet and the conduit structure define the conduit in the sample processing device.

47. (New) A method according to claim 46, further comprising forming the conduit structure in the second major surface of the control layer.

48. (New) A method according to claim 40, further comprising locating one or more reagents in one or more of the process chamber structures before attaching the cover sheet.